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A

PROBATIONARY ESSAY

ON

ISCHURIA VESICALIS:

SUBMITTED,

BY THE AUTHORITY OF

THE PRESIDENT AND HIS COUNCIL,

TO THE EXAMINATION OF THE

Royal College of Surgeons

OF EDINBURGH,

WHEN CANDIDATE FOR ADMISSION INTO THEIR BODY,

IN CONFORMITY TO THEIR REGULATIONS

RESPECTING THE

ADMISSION OF ORDINARY FELLOWS.

BY

MARTIN SINCLAIR, M. D.

LICENTIATE OF THE ROYAL COLLEGE
OF SURGEONS.

Hic enim breve spatium est, intra quod, si auxilium non profuit, æger
extinguitur.

CELSUS.

admitted 18 April 1826.

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MDCCCXXVI.

William Brown Esq

I enclose
with best Compliments
from the Author

TO
ANDREW DUNCAN, JUNIOR, M. D.

F. R. S. E.

PROFESSOR OF MATERIA MEDICA

IN THE

UNIVERSITY OF EDINBURGH,


THESE PAGES ARE INSCRIBED,

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A

PROBATIONARY ESSAY

ON

ISCHURIA VESICALIS.

DISEASES of the urinary organs, from their frequent occurrence, the rapidity of their progress, and their tendency to a fatal termination, claim for themselves the greatest attention of the Surgical Practitioner. Of these, **RETENTION OF URINE** is one of the most important, and, from its frequently proving fatal, as well as from the painful symptoms, and general derangement of the system which accompany it, demands his prompt and efficient interference. On this account, I consider it as not unworthy of a few observations, and have, accordingly, chosen it as the subject of this Probationary Essay.

DEFINITION.

THE term Ischuria has been restricted, by some medical authors, to denote the suppressed secretion of the urine ; while, by others, it has been indiscriminately applied to point out its retention in the bladder, as well as its suppressed secretion. This misapplication of a generic term, by misleading the Surgeon, is apt to produce serious errors in practice, which a correct classification would completely obviate.

Dr. Cullen, in his nosological arrangement of diseases, has placed Ischuria in the class *Locales*, and order *Epischeses*, and has subdivided it into four species, viz. *Ischuria Renalis*, *Ureterica*, *Vesicalis*, and *Urethralis*.—The propriety of classing Ischuria among the *Locales* may be questioned ; and the subdivision of the species, though rather superfluous in practice, leads to a correct diagnosis, and, consequently, to a proper and efficient treatment of the disease.

Retention of urine, which forms the third species in this arrangement, is defined in these words.—“ Total suppression of urine, with swelling of the hypogastric region ; pain at

the neck of the bladder, and frequent desire of making water.”

HISTORY.

ISCHURIA VESICALIS is an inability of expelling, by the natural efforts, the urine contained in the bladder. It attacks persons advanced in years more frequently than those who are young or middle-aged, and males more frequently than females; is accompanied with various symptoms of general derangement of the system; and sometimes is complete, at other times incomplete. On this account, it may not improperly be divided into two species, the Acute and Chronic,—the one accompanied with derangement of the system, the other only local in its operation.

The Acute or complete state of Ischuria Vesicalis most commonly seizes the patient in a sudden manner. At first, he has a frequent inclination to make water, and, if a few drops be evacuated, accompanied with pain and a sense of heat. The complaint continuing, these symptoms become aggravated; there is a frequent straining to pass urine; thirst, nausea, and vomiting occur; the patient becomes hot and restless, continually tossing himself

in bed ; pain is felt in the hypogastric region, which is tender to the touch, and slightly swollen.

As the disease advances, all the symptoms become aggravated ; violent efforts are now excited to pass urine, and not unfrequently a small quantity is evacuated while these paroxysms continue. At this period a glairy discharge sometimes takes place from the urethra ; the pain in the hypogastric region increases, and extends to the whole abdomen, the muscles of which are excited into violent action. The bladder can now be distinctly felt in the hypogastrium, tender to the touch, and extremely painful : the fever increases ; and the patient keeps himself in a bent position, with his thighs drawn upwards, to mitigate his sufferings.

If the disease proceed farther, the most unfavourable symptoms present themselves. The patient suffers the most excruciating pains, which, at times, are intermitting, and, in females, resemble the expulsive efforts of the uterus ; the whole abdomen is swollen, tense, and extremely painful to the touch ; the face is flushed, has a wild appearance, and delirium supervenes. There is now extreme thirst, and a urinous smell is emitted from the breath and perspiration : incessant restlessness

so harasses the patient, that the weight of the bed-clothes becomes oppressive, and the free admission of cool air is eagerly desired. At this time, the tumor in the hypogastrium is extremely prominent, and painful to the touch, ascending as far as the umbilicus, accompanied with urgent tenesmus. Not unfrequently this condition continues for a day or more; and, about the third day from the commencement of the attack, the bladder attains the greatest degree of distension of which it is capable without laceration. In this state, the urine frequently runs off from the bladder, as soon as it is conveyed there by the ureters, but without relieving the urgent symptoms; and the attendants are thus apt to be misled as to the true nature of the disease. This condition frequently terminates in irremediable paralysis. At other times, the paroxysm is terminated by sloughing of the urethra, or recto-vesical septum, suppuration of the bladder, with fatal hectic, or ulceration of its coats, with extravasation into the abdomen, accompanied with general irritation of the system; the pulse becomes quick and feeble, the respiration difficult and hurried: delirium, convulsions, and coma, with subsultus tendinum, supervene.

The Chronic or incomplete state of Ischu-

ria Vesicalis, which commonly arises from some local irritation or mechanical obstruction, often continues for some time, without the patient being sensible of his situation. During this state, the whole of the urine is sometimes evacuated, but in an extremely languid stream, and latterly only in drops. At other times, the inclination to make water is extremely frequent and urgent, compelling the patient to attempt, at short intervals, the evacuation of the bladder, though generally, on these occasions, a few ounces only are discharged. When the retention is depending on calculus, the patient is enabled, not unfrequently, by changing his position, to evacuate completely the urinary bladder.

This state frequently continues for a considerable time, without any aggravation or abatement of the symptoms, with only a sense of weight and uneasiness in the hypogastrium : at length a state of atony prevails, and the patient is unable to evacuate any urine without the catheter, and, if this happens in advanced age, very often terminates in irremediable paralysis. At other times, the bladder continues distended with urine for two or three days ; and, in this state, its muscular powers presenting no resistance, the urine is frequently discharged in nearly the natural

quantity. Sometimes, although not often, this condition of the bladder passes into inflammation, which terminates in suppuration, with fatal hectic, or exhaustion of the living powers, more especially in long protracted cases, arising from mechanical obstruction.

PREDISPONENT CAUSES.

It cannot be doubted, that, in some individuals, there exists a predisposition to Ischuria Vesicalis, which is easily called into action by the operation of an exciting agent. Here we shall only mention persons advanced in years, those who lead a sedentary life, and those who are addicted to excessive venery, and intemperance in the use of spiritous liquors. Certain states of the system, which exist in persons of a melancholic temperament, in typhus, hysteria, tetanus, and mania, as well as diseases and irritation of the neighbouring parts, induce a tendency to this complaint.

EXCITING CAUSES.

THE remote or exciting causes may be divided, agreeably to the above arrangement,

into those which induce the Acute, and those which induce the Chronic, state of Ischuria Vesicalis. Among the former may be enumerated inflammation and spasm of the bladder, strictures of the urethra, and sudden stoppage of gonorrhœa from stimulating injections: Among the latter, calculus in the bladder, enlargement of the prostate gland, retroversion of the uterus, paralysis of the bladder, and diseases of the neighbouring parts.

The urinary bladder is amply furnished with nerves, blood-vessels, and muscular fibres, which fit it for its proper function, and, from its extensive sympathy, participates in diseases of the neighbouring parts.

When this viscus, but more especially its sphincter, is inflamed, retention of urine is an invariable consequence. In this condition, the muscular fibres, from their distention, and the repletion of their blood-vessels, as well as from the preternatural excitement of the nerves, are rendered unfit for contraction. In this state, all power of contraction is completely repressed, and a state of complete atony not unfrequently succeeds.

In this inflamed state, the bladder, in many cases, acquires an increased mobility; and, from the diminished capacity which al-

ways accompanies this state, the smallest quantity of urine, which, in the healthy state of this viscus, would not have roused it into action, now distends it, and excites the most painful sensations and violent efforts to contraction.

Inflammation of the bladder, though a rare occurrence, is at times produced by cold ; overdistention with acrid urine ; calculus ; gout ; or herpetic eruption translated to the bladder ; acrid medicines, particularly cantharides, taken into the system.

Urinary calculi, in some individuals, are loose in the bladder ; in others, encysted in this viscus ; and in their appearance sometimes present a polished, and as frequently a scabrous surface. Violent exercise of the body, by displacing calculi from their nidus, more especially when they are rough on their surface, frequently bring on a bloody discharge of urine, and at other times an inflammation of the bladder, with retention of urine ; and, from the contractions of this viscus on the extraneous body deposited in its cavity, the most painful and urgent symptoms are excited.

Cantharides, when absorbed into the system from a blistered surface, from their determination to the urinary organs, not unfre-

quently excite pain and difficulty in making water ; and if the blister has been large, the urine is at times loaded with blood, accompanied with violent strangury. When cantharides are taken into the stomach in any considerable quantity, the most painful and urgent symptoms are experienced, in consequence of the inflammation of the bladder which is excited, and the complete retention of urine which invariably accompanies this state.

A case illustrative of these remarks lately came under my notice, the particulars of which may not be unsuitable on the present occasion. The patient was a young woman ; and, supposing herself pregnant, she took, at bed-time, in one dose, twenty grains of the powder of cantharides, for the purpose of inducing abortion. Very early the following morning the patient was awakened in the most excruciating agony : she had an incessant desire to make water, without being able to pass the smallest quantity ; pains in the lumbar region, extending to the bladder, were most acute and remitted, like those of parturition ; the hypogastric region was very little swollen, but painful in the extreme, in-somuch that the patient was constantly writhing her body, and was unable to bear the weight of the bed-clothes. A glairy dis-

charge took place from the vagina : the pulse was small and weak, and the body was bedewed with a cold sweat ; and, latterly, a bloody discharge took place from the uterus, which continued for several days.

The treatment adopted in this case was copious blood-letting, large opiates, free use of demulcents, the warm bath, with cathartic and emollient enemata. Perseverance in this plan of treatment subdued the most urgent symptoms, and the patient was at length restored to her usual health : slight abdominal pains continued for some time, which, however, gradually wore off.

Another exciting cause of Ischuria Vesicalis is spasm of the muscular texture of the bladder, which, destroying the reciprocal action subsisting between the detrusor urinæ and sphincter vesicæ, not unfrequently produces retention of urine. This condition of the sphincter vesicæ produces the most painful sensations ; and, from the great similarity of the symptoms which accompany retention depending on inflammation of the bladder, can with difficulty be distinguished from it. The distinction, however, is of importance, as the treatment of the two cases is considerably different. In retention depending on inflammation, the approach of the disease is general-

ly gradual. It occurs in those of a sanguine temperament, accompanied with ardent fever, and when the symptoms run high, delirium prevails. When spasm of the sphincter is the cause of the retention, the attack is most commonly sudden ; violent pain is felt at the neck of the bladder ; the features are shrunk, and the pulse is small and weak. Moreover, this species of the disease generally occurs in persons of an irritable constitution, or in those whose nervous system is considerably impaired.

Spasm of the muscles of the bladder commonly depends on some unusual irritation, either in the bladder or in the neighbouring parts. In some individuals a peculiar irritability of bladder exists, which is easily excited into a spasmodic state. More frequently some palpable source of irritation exists as the cause of this condition, such as diseases of the rectum or uterus, erosion or ulceration of the bladder, and vitiated secretion of its mucus.

The urethra is lined with a membrane, continued from the inner surface of the bladder, which secretes mucus to lubricate its surface and to protect it from the action of the urine. When this secretion is vitiated in its quality, and when the lining membrane of the urinary

passage is acted on by the virus of gonorrhœa virulenta, a specific inflammation, with a copious discharge of a puriform fluid, is excited.

When this condition of the urinary passage is improperly treated, by stimulating injections in its early stage, a sudden stoppage of the discharge takes place, inflammation of the neck of the bladder is induced, the penis swells, and is extremely painful, and complete retention of urine supervenes. In this condition, the introduction of a bougie or catheter is impracticable; and the most painful and urgent symptoms are produced, unless the urine be evacuated, by having early recourse to puncturing the bladder from the rectum.

A case of this kind occurred about three years ago in the hospital. The patient was a coachman; and had been labouring under gonorrhœa for some days, and which had been suddenly checked by a very stimulating injection. The penis swelled to an enormous degree: the introduction of a catheter was found to be impracticable; and, after trying every preliminary measure in vain, the bladder was punctured from the rectum with Pouteau's trocar, which was allowed to remain in the wound. The operation was performed by Mr. Joseph Bell; and the urine resumed its natural course in a few days.

That the urethra is furnished with muscular fibres is now almost universally admitted by anatomists ; and if this position cannot be supported by anatomical demonstration, it is certain that complete proof is furnished of this condition by the contractions which are excited on the application of a stimulus to this canal, as is exemplified in the introduction of the bougie. This passage, as has been stated above, is frequently affected with a specific inflammation, which produces contractions or strictures, which sometimes occupy a large, but more frequently a small extent only, of the passage. Mr. Cooper, in his *Surgical Dictionary*, observes, that “ almost every stricture, how bad soever it may be, is capable of being rendered still worse, and the morbid part of the urethra more impervious, by a spasmodic affection. Going out of a warm into a cold situation, drinking, and other kinds of intemperance, will often bring on an irritable state of the canal, attended with a spasmodic action of the strictured part, an increased difficulty of voiding the urine, and even a total retention of this fluid. The patient makes repeated efforts to relieve himself ; but hardly a drop of urine is discharged. In the meanwhile, the bladder becomes filled, and ascends above the pubes, the abdomen grows

tense and painful, fever comes on, the countenance looks red, the brain becomes affected, and circumstances assume an extremely urgent appearance.” *

In cases of this disease, arising from strictures, the most prompt and efficient measures must be adopted; and if our efforts to draw off the urine prove ineffectual while the dangerous symptoms continue, the bladder should be punctured from the rectum without farther delay.

The causes of Chronic Ischuria Vesicalis, which we have enumerated above, are calculus in the bladder, enlargement of the prostate gland, retroversion of the uterus, paralysis of the bladder, and diseases of the neighbouring parts. On each of these I shall offer a few remarks.

Urinary concretions occur at almost every period of life, most commonly in the male; and they are more frequent in advanced life than in those of tender years, though the complaint is often met with in boys. When these concretions exist in the bladder, by frequently changing their position, a partial retention of urine is induced, which the patient can at times overcome by altering the position of his body. When this is not effectual,

the introduction of a catheter or bougie becomes necessary.

Blood, by descending from the kidney into the bladder, or by being discharged from the inner surface of this viscus, in consequence of ulceration or lesion of its coats, sometimes proves the cause of incomplete retention of urine, which, however, is in general completely remedied by the early use of a proper catheter.

The prostate gland is, like other organs of the body, subject to acute inflammation, which, however, is almost invariably accompanied with a similar condition of the sphincter vesicæ, and produces the same symptoms which have been already noticed. At present we shall make a few observations on the chronic enlargement of this gland.

The enlargement of the prostate most frequently occurs in old people, and presents itself in various degrees. The most frequent form is the enlargement of the gland to nearly the size of the fist, presenting the appearance of a third lobe, projecting between the extremities of the seminal ducts, which causes an incomplete retention of urine.

The symptoms of this species of retention are slow in their progress, and often continue for a considerable time, without the patient's

experiencing much inconvenience. At length, a sense of weight and uneasiness is felt in the perineum, the stream of urine is frequently obstructed in its progress, a constant tenesmus prevails, and, on examining *per anum*, a hard tumor is distinctly felt: On examining the urethra with a bougie, we are farther made certain of the existence of the enlargement of the prostate gland. The change of structure in the bladder, which accompanies this state of the prostate, is apt to mislead the practitioner; for, on introducing the catheter, only a small quantity of urine is evacuated, and the uneasiness, with tumor, in the hypogastrium, continue, on account of the bladder still containing a quantity of urine, either from the catheter getting entangled in its passage, or from the bladder being divided into different compartments, by the diseased prostate or membranous septa, formed in consequence of the continuance of the disease.

In long protracted cases of enlarged prostate, the muscular coat of the bladder acquires an increase of thickness; and, not unfrequently, such an irritability prevails, as compels the patient to pass his urine every two or three hours. This condition requires the constant use of the catheter. Calculi have been some-

times found in this gland, and given rise to retention of urine.

Between the third and fourth months of pregnancy, the uterus ascends from the cavity of the pelvis; and, when blows are inflicted on the abdomen, or its muscles in any manner overstretched, retroversion of this viscus is apt to take place. When the accident happens, a tumor is felt between the rectum and vagina, formed by the fundus uteri being pressed backwards and downwards, while the os uteri is directed forwards and upwards, compressing the urethra upon the symphysis pubis. Difficulty in voiding the fæces, with tenesmus and retention of urine, invariably accompany this state. "Sometimes," says Mr. Burns, "the urine dribbles away involuntarily, or can be passed in small quantities, especially during the commencement of the disease; but often, within a few hours, it becomes completely obstructed, with pain about the loins, tenderness in the lower belly when it is touched, and a severe bearing-down sensation."

This condition requires the early introduction of the catheter, as the retention is apt to become so complete, as to require the bladder to be punctured from the vagina. "We must not be deceived," observes Mr. Burns, "with

regard to the state of the bladder, by observing that the woman is able to pass a small quantity of water; for it may, nevertheless, be much distended. We must examine the belly, and attend to the sensation produced by pressure on the hypogastric region. Even although the catheter has been employed, only part of the urine may have been drawn off, particularly if the complete evacuation has not been assisted by moderate pressure over the bladder. It has happened, that only so much has been taken away as to give a little relief, and alter the position of the uterus so much, as to lessen the pressure on the orifice of the bladder. In this case, on getting up, a great quantity of urine has flowed spontaneously, and the womb immediately returned to its proper state."

Retention of urine, depending on paralysis of the bladder, most commonly occurs in persons advanced in years, and, in general, is gradual in its progress. At first the patient feels a sense of weight and uneasiness in the region of the bladder, with an inability of expelling the whole of the urine, which compels him to make frequent efforts to evacuate the bladder, without the power of doing so. The urine is discharged in a slow, languid stream; and, instead of being projected from the penis,

trickles down between the legs, and at length is discharged only in drops. This condition often continues for a considerable period, without the patient experiencing any other inconvenience than a sense of weight and uneasiness in the region of the bladder, with frequent, but ineffectual, inclinations to make water. At length, none of the urine can be discharged even with the assistance of the abdominal muscles; and a state of complete atony follows, with swelling in the hypogastric region. This state lasts two or three days, when the urine begins to run from the urethra, without the patient being able completely to evacuate the bladder.

Retention of urine, depending on this cause, at other times occurs suddenly. The patient at once complains of an inability to evacuate his bladder, which becomes filled and distended, assuming a circumscribed form in the hypogastric region. “Most frequently, the swelling which this viscus forms is at first not particularly painful, but afterwards becomes very much so. Some patients make frequent efforts to expel their urine, others are more tranquil. This state lasts two or three days; after which the urine begins again to escape from the urethra, sometimes by drops, sometimes in a stream, but almost al-

ways at the will of the patient. In some instances, as much urine is voided as the fluid which is drank ; yet, notwithstanding this, the bladder continues to be distended with urine, and to form an elevation above the pubes. This circumstance has frequently led practitioners into error ; and some of them have even mistaken the swelling of the hypogastric region for an abscess."

In some general diseases of the system, as in typhoid fevers, apoplexy, injuries of the spine, and during the continuance of a maniacal paroxysm, such a degree of stupor prevails, that the patient is insensible to the stimulus of urine ; and retention not unfrequently occurs, which requires the greatest attention of the medical practitioner during the continuance of these disorders. Retention of urine is also observed to follow the administration of large doses of narcotic medicines.

The most frequent causes inducing this atonic state of the bladder are old age, general debility of the system, impaired nervous sensibility, intemperance in the use of spiritous liquors, excessive venery, sedentary habits, an incautious resistance to the calls of nature, frequent attacks of gonorrhœa, and diseases of the brain and spinal marrow.

Diseases of the parts contiguous to the

bladder, from the irritation they excite, occasionally induce an incomplete retention.—Of these, we may mention organic diseases of the uterus and its appendages, pressure of the gravid uterus, hæmorrhoids, diseases of the rectum, and obstinate constipation.

Before finishing this account of the causes of retention of urine, it may be observed, that, in those cases arising from mechanical obstruction in the bladder, this viscus, especially when the obstruction has been of long continuance, acquires an increased thickness of its coats; and its capacity is so much diminished, that it frequently cannot contain above four or five ounces of urine. In proportion to the obstruction to be overcome, so are the natural actions of the bladder exerted, by which the muscular coat acquires such an increase of density, as might mislead the pathological inquirer, by not attending to this change of structure; and, in performing operations on this viscus, this change of structure is to be kept in view, as serious mistakes might otherwise happen. In a bladder so altered in structure, a very small quantity of urine will indicate the same symptoms, as would not be produced in the healthy state by three or four times the same quantity.

DIAGNOSIS.

RETENTION of urine is a disease which can be discovered with the greatest facility. From the suppressed secretion of urine, it is distinguished by the fixed pain in the region of the kidney, the absence of swelling in the hypogastric region, as also of the frequent desire to make water; and, upon introducing the catheter, no urine is discharged. The origin and progress of the disease, likewise, furnish additional proofs, completely diagnostic, of the Ischuria Vesicalis.

Frequently the retention exists, when the flow of urine from the bladder is by no means totally suppressed; and, unless the catheter be introduced, the practitioner is apt to commit serious mistakes as to the true nature of the disease.

On this point, Mr. Hey observes, that “violent efforts to make water are often excited at intervals; and, during these strainings, small quantities of urine are expelled. Under these circumstances, the disorder may be mistaken for strangury.

“At other times, a morbid retention of urine subsists, when the patient can make

water with a stream, and discharge a quantity equal to that which is commonly discharged by a person in health.

“ And, lastly, it sometimes happens, that, when the bladder has suffered its utmost distention, the urine runs off by the urethra as fast as it is brought into the bladder by the ureters. I have repeatedly known this circumstance cause a serious misapprehension of the true nature of the disease.”

In these cases, and in every other, the circumscribed tumor in the hypogastrium, with the concomitant symptoms, clearly indicate the disease; but, in order to remove every doubt, more especially in corpulent subjects, the catheter should be introduced.

Cases are recorded, where retention of urine has been mistaken for pregnancy, and for abscess in the hypogastrium; but the slightest examination, in connection with the history of the case, at once point out the exact nature of the disease.

PROGNOSIS.

IN retention of urine, our prognosis is to be formed from a consideration of the urgency of the symptoms, the continuance of the

disease, and the causes from which it proceeds.

In the acute form of the disease, when ardent fever prevails, and the hypogastric region is occupied by a circumscribed tumor, and painful to the touch, with a general uneasiness over the whole abdomen, great danger may be anticipated. Farther, if these symptoms continue for a considerable period, and are succeeded by swelling of the abdomen, small weak pulse, hurried respiration, coldness of the extremities, and clammy sweats, and, more especially, if delirium, coma, with hiccup and subsultus tendinum, supervene, extravasation into the abdomen, with approaching dissolution, are to be dreaded.

In every case of this disease, from whatever cause it may proceed, when of long continuance, an unfavourable termination is to be expected. A state of complete atony, or a low degree of inflammation, terminating in suppuration, with fatal hectic, may follow.

In retention, proceeding from mechanical obstruction or local irritation, it is the duty of the practitioner to remove these causes of the disease, otherwise the relief that may be obtained by the patient can only be temporary.

TREATMENT.

THIS may be divided into that of the *Acute* and *Chronic* species; and the former of these into *general* and *local*,—the latter being regulated according to the exciting cause of the disease.

GENERAL TREATMENT.—The first curative means to be adopted by the practitioner is blood-letting, the quantity to be drawn being regulated by the urgency of the symptoms, the habit of the patient, and the continuance of the complaint. If the pain in the hypogastrium be very acute, extending to the abdomen, and accompanied with pyrexia, from twenty to thirty ounces may be detracted; and, in order make an impression on the system, it should be drawn from a large orifice, while the patient is in an erect posture. If he be of a very robust constitution, the operation may be performed in the warm bath; and should syncope supervene, the greater benefit may be anticipated from the operation. In addition to the general bleeding, the bowels must be freely opened by castor oil and emollient enemata; hot fomentations kept

constantly applied to the region of the bladder; and some diaphoretic may be administered, carefully avoiding nitre, or any other saline medicines that may have a tendency to pass off by the kidneys. Blisters must not be resorted to in this stage of the complaint, as the absorption of the cantharides, from their direct influence on the urinary organs, would aggravate all the symptoms.

Should these means not prove effectual, in the course of eight or twelve hours, in removing the inflammatory symptoms, while the retention continues, the bleeding may be repeated to such an extent as the habit of the patient may warrant; nor is the practitioner to be intimidated by the small, weak pulse which frequently accompanies inflammations of internal organs. In addition to the general bleeding, leeches may be applied in the vicinity of the bladder, the discharge from which may be promoted by hot fomentations. When blood has been drawn in sufficient quantity, and the bowels been freely opened, opium may be administered, either by injection or by the stomach; by itself, or in conjunction with calomel. If no obstacle presents itself, the mode of administration by injection should be preferred, as the opium, in this manner, is immediately applied to the

seat of the disease, and, at the same time, acts as an internal fomentation. When given by the stomach, it has been found that greater benefit has been derived from combining it with calomel than by administering it by itself.—Two grains of the former with ten of the latter, formed into a bolus, may be given every sixth hour till some relief be obtained.

Should all these means fail in removing the inflammatory symptoms, the retention still continuing, one drachm of tobacco, infused in a pint of boiling water, may be injected *per anum*; and as dangerous symptoms have sometimes followed the use of this herb, only one-half of the infusion should be administered at first; and if no bad effect follow, the other may be administered in the course of half an hour.

LOCAL TREATMENT.—In cases of retention, depending on spasm of the sphincter vesicæ, should the general treatment recommended above not prove effectual, we are to endeavour to resolve the spasm, by passing a bougie along the urethra to the neck of the bladder, and allowing it to remain there for two or three minutes. Not unfrequently, upon introducing this instrument, the urine follows when it is withdrawn; but should this not take

place, a small elastic gum catheter may be attempted to be introduced into the bladder, which, by gentle but steady perseverance, generally passes along the whole course of the urethra. In addition to this, opiate glysters and suppositories may be used, and, at the commencement of the disease, a liberal dose of *tinctura opii* may be administered.—The medicine, however, which has, of late years, been highly commended for its efficacy in removing spasm of the urethra or bladder, is the *tinct. mur. ferri*. This medicine, given in the dose of ten drops every half hour, until six or eight doses have been taken, has generally been found effectual in overcoming the spasm, more especially if bleeding has been premised.

In retention, depending on inflammation of the neck of the bladder, the general treatment must be steadily persevered in; and if no urine be evacuated, the elastic gum catheter must be introduced. Should the pain at the neck of the bladder, and the other symptoms, be aggravated on introducing this instrument, all farther attempts at drawing off the urine in this way must be abandoned; and no time should be lost in puncturing the bladder, to prevent the life of the patient being endan-

gered, or, at least, to prevent the bladder falling into a state of irremediable paralysis.

When gonorrhœa has been suddenly stopped, and an inflammation of the urethra, similar, as we think, to what takes place in cynanche trachealis, pervades its whole extent, so as to cause complete obstruction of the urinary passage, leeches must be applied to the penis; and, after the bleeding has completely ceased, it ought to be kept constantly moistened with warm saturnine lotions. The introduction of a bougie or catheter, though, in general, impracticable, must be attempted; and, if success does not follow our efforts to draw off the urine, the bladder must be punctured without farther delay.

In retention, proceeding from an aggravated condition of strictures, the general treatment must be rigidly enforced: leeches must be applied to the perineum; warm saturnine lotions to the penis; a liberal dose of tinctura opii administered; and an enema amyli, containing two drachms of this tincture, injected *per anum*: the tinct. mur. ferri. may be also exhibited in doses of ten drops, every half hour, till six or eight doses have been taken.

“ When these measures fail in enabling the

patient to empty his bladder, and this viscus is becoming more and more distended, an immediate attempt should be made to introduce a small flexible elastic gum catheter through the strictures into the bladder, which object may be frequently accomplished, when due care, perseverance, and gentleness are not neglected. Sometimes, when a small flexible catheter cannot be introduced, a fine bougie admits of being passed into the bladder; and, on being withdrawn, the urine follows, and is discharged."

Should all the preceding means prove unavailing, and the danger arising from the retention continue to increase, the only remaining resource is to puncture the bladder. The cannula of the trocar should then be left in the wound till the strictures are cured, or, at least, till the urine seems to resume its natural course through the urethra.

In every species of the retention, when all our endeavours to draw off the urine prove unavailing, and the bladder is distended to its utmost extent, with the risk of ulceration of its coats and extravasation of urine into the abdomen, or of irremediable paralysis supervening, we are forthwith to have recourse to the operation of puncturing the bladder, to prevent a fatal termination.

When the necessity of this operation is indicated, as great danger arises from delay, no time (after every preliminary measure has been tried) should be lost, in expectation of the urine resuming its natural course. By the account of every surgeon, it appears that the bladder attains the greatest degree of distention, of which it is capable, in the course of three days. After this, if no catheter can be introduced, the orifice of the bladder seems to expand, as the bladder is prevented from being lacerated from the equable support it receives from the surrounding parts, and often the urine begins to flow. “ Whatever descends from the kidneys is evacuated in small quantities from time to time ; and at this period the bladder is distended in as great a degree as it ever can be, however long the patient may survive. This dribbling of the urine, which begins when the bladder is distended to the utmost, and continues till the eighth or tenth day, or till the bladder sloughs, has long been understood, and is named by the French *Urine par regorgement*.”

To prevent this termination, the operation should be performed, in every urgent case, as soon as forty-eight hours have elapsed. According to Mr. Allan, only thirty should be allowed for trying preliminary measures.

Of the manner of performing this operation, three methods have been recommended by authors,—by the perineum, above the pubes, and by the rectum. Of these three modes, that by the rectum is the most preferable. The wound is made in a part free of inflammation, of little thickness, and there is no risk of the urine diffusing itself in the cellular membrane, as is apt to happen when performed above the pubes. The enlargement of the prostate gland is, perhaps, the only solid reason why this mode of puncturing the bladder should not be uniformly preferred.

When it is intended to puncture the bladder, a common enema should be administered an hour before performing the operation. The patient is to be placed in the same position as for lithotomy, an assistant standing at his right side, to support the scrotum and penis, and with his left hand to press down the tumor in the hypogastrium: the surgeon is then to introduce two fingers into the rectum, to ascertain the precise point where the puncture is to be made; the cannula of Pouteau's trocar is then to be introduced, with its extremity applied to the most prominent part of the bladder, and, when placed in this situation, the stilette is to be in-

troduced, and pushed onwards to the bladder. Such is the simplicity of this operation, and the facility with which the parts are punctured, with scarcely any pain, that the patient frequently is not aware of the surgeon's having accomplished his purpose, till the flow of urine convinces him that the urinary bladder has been pierced.

After the bladder has thus been completely emptied, the cannula of the trocar may be allowed to remain, as no bad effect follows; or it may be withdrawn if the patient experiences any uneasiness from its presence. By this mode of procedure, however, the wound contracts; but, when an inclination to make water occurs, an expansion of its orifice seems to take place, and the urine flows. If the wound has completely healed up, the operation may be repeated, which gives little or no trouble to the patient.

This operation is seldom required in females; but, when necessary, it may be easily performed from the vagina; and if the cannula be allowed to remain in the wound, it must be of sufficient length to allow its extremity to project beyond the labia, where it must be fixed with a T bandage.

TREATMENT
OF
CHRONIC ISCHURIA VESICALIS.

IN retention of urine, depending on calculus in the bladder, a palliative mode of treatment only can be adopted. Should the stream of urine be suddenly interrupted in those labouring under this affection, a bougie or catheter may be introduced, to remove the stone from the orifice of the bladder; after which a free discharge of urine will follow. If blood or muco-purulent matter be discharged with the urine, astringents, particularly the uva ursi, and opiates, may be had recourse to. These, with occasional laxatives, and a proper regulation of the diet, comprise our general treatment in these cases. To have a radical cure accomplished, the patient must then choose the alternative of having occasional attacks of retention of urine, or of submitting to have the calculus extracted from the bladder.

When blood has coagulated in the bladder, and gives rise to retention, a large catheter, with a long beak, should be introduced, to

draw off the urine ; and should this not succeed, authors recommend a syringe to be fastened to the outer end of the catheter, by which means the blood and urine are to be sucked out of the bladder.

When the prostate gland becomes morbidly enlarged, so as to give rise to retention, our only resource consists in the catheter. For this purpose, an instrument with a long beak, with its extremity bent a little more upwards than usual, is best adapted for introduction into the bladder, owing to the change in the urethra. In introducing this instrument, its extremity should be applied to the upper part of the urethra, till it has reached the affected part : the handle is then to be depressed, and gently pushed forwards, by which means it, in general, easily enters the bladder, before the enlarged gland. The introduction of a finger into the rectum, to direct the point of the instrument, greatly facilitates its introduction.

When the surgeon has succeeded in introducing the catheter, it is to be allowed to remain till the bladder has recovered its contractile power, while remedies may be applied to reduce the enlargement of the prostate.

When every effort to pass a catheter is ineffectual, the only means that remain of sav-

ing the patient is to puncture the bladder.—In this case, the operation can only be performed above the pubes ; and, as it affords only temporary relief, unless the obstruction caused by the prostate can be removed, or the surgeon can succeed in introducing a catheter through the urethra, the cannula of the trocar ought not to be withdrawn. Cases are recorded where this has been allowed to remain for a long time without inconvenience,—the wound having healed all round the tube, and being quite free from redness.*

In retention, proceeding from retroversion of the uterus, our practice consists in drawing off the urine, emptying the large intestines, and avoiding every source of irritation, by keeping the patient quiet and in a horizontal posture in bed. Should any difficulty be experienced in introducing the ordinary catheter, the male one may be used, with its convexity turned towards the pubes, assisted by the introduction of the finger in the vagina. After these measures have been adopted, the practitioner is to attempt to reduce the uterus to its proper situation, after which the patient is to be confined to bed ; the bowels kept open ; every inclination to make water must

* Cooper's Surgical Dictionary.

be regularly obeyed ; and every exertion is to be avoided that might have the least chance of causing a relapse.

Paralysis of the bladder, we have stated above, depends either on such a condition of the system as produces an exhaustion of the vital powers, with impaired nervous sensibility ; or on injuries of the brain and spinal marrow, whereby the influx of nervous energy is interrupted, and atony of the bladder supervenes.

In retention, proceeding from the first state, our principal business consists in the regular and timeous use of the catheter. In those cases where the urine is discharged in drops, or in a very languid stream, the catheter should be regularly used ; and, in general, it will be found, that most patients require its introduction three times in the four and twenty hours. Should any inclination to pass water come on before the stated time of using the instrument, the natural efforts should be encouraged as it indicates a return of healthy action in the bladder.

In those cases, where the retention is so complete, that none of the urine can be evacuated by the natural efforts, the utmost regularity in the use of the catheter ought to be observed ; and the bladder ought never to be allowed to

become quite distended, as there is then risk of its losing whatever degree of tone it may have regained. After the bladder has been emptied, the catheter must be allowed to remain, or be introduced as occasion requires. By the latter mode, the bladder regains its contractile power soonest, as the occasional introduction of an extraneous body acts as a stimulus to the languid nerves; and its application, not being habitual, excites a new action every time it is introduced. When the catheter is allowed to remain in the bladder, those of flexible gum ought to be preferred; and they must be withdrawn every ten or twelve days, to be cleared of extraneous matter, with which they are apt to be incrustated.

The time which the bladder takes to regain its power of contracting, varies considerably in different individuals. When the retention has come on in a gradual manner, it commonly lasts about six weeks. “When the patient makes water very slowly; when he is obliged to make frequent attempts; and when he feels a sense of weight about the neck of the bladder, this viscus has not recovered the whole of its tone, and the employment of the catheter is still necessary.”

When the complaint continues beyond six

or eight weeks, little chance remains of effecting a cure; and the only thing which can be done is, to advise the patient to make continual use of the flexible catheter, which he should be taught to introduce himself, whenever he has occasion.

On the contrary, “when the urine flows from the catheter in a rapid stream, which is projected to some distance, and when it also passes out between the catheter and the urethra, it is a sign that the bladder has regained its power of contraction, and that it can empty itself without the aid of the instrument. In this circumstance, the catheter is to be taken away, and the patient may gradually resume his occupation and usual mode of life.”

Along with the occasional use of the catheter, we are to endeavour to restore the lost energy of the bladder, by the internal use of cantharides, chalybeates, blisters to the sacrum, kept open by the savine ointment, and cold washes to the hypogastric region; and the patient is to co-operate with the surgeon, by paying proper attention to his diet, taking regular exercise in the open air, and avoiding every exciting cause of the disease.

In retention, depending on injuries of the brain and spinal marrow, our first attention is to be directed to the primary disease; and,

when this is removed, the bladder, in general, returns to its natural condition. In like manner, when the retention proceeds from diseases of the neighbouring parts, our first object is to remove these; and, by keeping the bowels open, palliating every uneasy sensation, with the occasional use of the catheter, the bladder at length performs its wonted duty.

